Cyanobacterial Toxins and the AOAC Marine and Freshwater Toxins Task Force

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Introduction

Cyanobacterial toxins have a significant economic and human health impact. Although there is a strong and global need for improved testing methods for these toxins, the demand for new, officially validated methods has not been met. Similarly, marine toxins require extensive monitoring programs and yet officially validated methodology is scarce or often based on outdated mouse bioassays. The AOAC Task Force on Marine and Freshwater toxins addresses this need by focusing efforts, setting priorities, and identifying economic and intellectual resources. The Task Force is an international group of experts on marine and freshwater toxins, and stakeholders who have a strong and practical interest in the development and validation of methods for detection of these toxins. The group establishes methods priorities, determines fitness for purpose, identifies and reviews available methodology, recommends methodology for validation, and identifies complementary analytical tools. Once appropriate analytical methodology has been identified or developed, the Task Force identifies financial and technical resources necessary to validate the methodology.

Since its first meeting in May 2004, the group has grown to include members from Europe, Asia, Africa, North and South America, and also members from Australia and New Zealand. As of September 2005, the group now totals 150 scientists, officials, and others. The toxins Task Force also has several members from the US state health agencies and federal agencies such as the Department of Health and Human Services (Food and Drug Administration, CFSAN Office of Seafoods, CFSAN/OC Shellfish Program, CVM), Department of Defense, Department of Commerce (National Oceanic and Atmospheric Administration), and Environmental Protection Agency.

New official method of analysis The first product of the new AOAC Task Force is a new Official Method of Analysis for paralytic shellfish poisoning toxins (OMA 2005.6) which for the first time in over 45 years of shellfish monitoring, (saxitoxins) has been approved allowing an alternative to animal testing that will have a worldwide impact. The new method, developed by Health Canada and based on precolumn-oxidation HPLC and fluorescence detection, has also found some application to saxitoxins-producing cyanobacteria.

Cyanobacterial toxins Although the first year emphasized the marine toxins, efforts addressing cyanobacterial toxins are rapidly increasing with the appointment of many experts and stakeholders in this field. Many oral and poster presentations addressing the cyanobacteria and associated toxins were presented, along with marine toxin presentations, at the group's first major conference, "Marine and Freshwater Toxins Analysis: 1st Joint Symposium and AOAC Task Force Meeting" in Baiona, Spain. At this unique meeting, participants discussed test kits for microcystins and validation needs for the cyanobacterial toxins, in general. The high level of interest recently led to the formation of a new cyanobacterial toxin subgroup.

New subgroup to address cyanobacterial toxins The new cyanobacterial subgroup, chaired by Task Force member Hans van Egmond (co-chairs to be appointed) will meet for the first time at AOAC's Annual meeting in Orlando, Florida on Sept. 2005, as will several marine toxin subgroups. Also, included in the extensive toxins program for Orlando are two symposia addressing marine and freshwater toxins including presentations on topics in cyanobacterial toxin detection. The Task Force intends to interact extensively with the US EPA and Dr. Armah de la Cruz will also present in Orlando a brief overview of methods discussions from ISOC-HAB. Also planned are Task Force relevant presentations on cyanobacterial toxins and marine toxins at symposia to be held at Pacifichem 2005 in Honolulu, Hawaii, Dec. 2005.